CLAIMS:

1. A method for making a fibrous nonwoven mat having good strength and recovery after scoring and folding comprising;

a) dispersing fibers comprising two different types of fibers in a fluid dispersion,

b) subjecting the dispersion to a moving forming screen to form a fibrous web,

c) applying an aqueous resin binder to the web, and

d) drying the wet web and at least partially curing the resin in the binder to form a resin bound fibrous non woven mat, wherein;

i) the fiber dispersion comprises about 2 to about 35 weight percent polymer fibers and and about 98 to about 65 weight percent glass fibers, based on the total weight of the fibers in the dispersion, and

ii) the aqueous binder comprises a mixture of water and a resin formed from a homopolymer or a copolymer of polyacrylic acid and a polyol.

2. The method according to claim 1, wherein the binder is substantially free of phenol, formaldehyde and urea.

3. The method according to claim 1, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

4. The method according to claim 1, wherein the polyol is triethanolamine.

5. The method according to claim 2, wherein the polyol is triethanolamine.

6. The method according to claim 3, wherein the polyol is triethanolamine.

7. The method according to claim 3, wherein the polyol is triethanolamine and the dispersion comprises a blend of about 5 to about 20 wt. percent polymer fibers and about 95 to about 80 wt. percent glass fibers, based on the total weight of the fibers in the dispersion.

8. The method according to claim 7 wherein the polymer fibers are polyester fibers.

9. The method according to claim 8 wherein the polyester fibers are 1.5 denier. and at least about 0.25 inch long.

10. The method according to claim 9 wherein the binder content in the finished dry mat is within the range of about 10 to about 35 wt. percent.

11. The method of claim 10 wherein the binder content is within the range of about 15 to about 25 wt. percent.

12. The method according to claim 10 wherein the binder content is within the range of about 20 to about 30 wt. percent.

13. The method according to claim 12, wherein the binder further comprises a phosphorus-containing catalyst.

14. The method according to claim 12 wherein the blend comprises about 8 to about 16 wt. percent polyester fibers and about 84 to about 92 wt. percent glass fibers.

15. The method according to claim 12 wherein the blend comprises about 8 to about 12 wt. percent polyester fibers having a length of about 0.25 inch and about 88 to about 92 wt. percent glass fibers having an average diameter of about 16 microns.

16. A method for making a fibrous nonwoven mat having good strength and recovery after scoring and folding comprising;

a) dispersing fibers comprising polymer fibers and glass fibers in an aqueous mixture to form a dispersion,

b) draining said mixture through a moving forming screen to form a wet fibrous web,

c) applying an aqueous resin binder to the wet web and removing excess binder to produce the desired binder content in the wet web, and

d) drying the wet web and at least partially curing the resin in the binder to form a resin bound fibrous nonwoven mat, wherein;

i) the dispersion comprises about 5 to about 20 weight percent man-made polymer fibers and about 95 to about 80 weight percent glass fibers, based on the total weight of fibers in the dispersion, and

ii) the aqueous binder comprises a mixture of water and a resin formed from a homopolymer or a copolymer of polyacrylic acid and a polyol and being present in the finished dry mat in amounts between about 15 and about 25 wt. percent based on the weight of the dry mat.

17. The method according to claim 23 wherein the polymer fibers are polyester fibers.

18. The method according to claim 17 wherein the fibers comprise about 8 to about 16 wt. percent polyester fibers.

19. The method according to claim 18 wherein the polyester fibers are at least 0.25 inch long and at least 1.5 denier.

20. The method according to claim 19 wherein the glass fibers are between about 0.5 and 1.5 inches long and have a diameter of between about 10 and about 19 microns.

21. The method according to claim 20 wherein the average fiber diameter of the glass fibers is between about 13 microns and about 17 microns and the length is between about 0.7 and about 1.25 inch.

22. The method according to claim 16, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

23. The method according to claim 17, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

24. The method according to claim 18, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

25. The method according to claim 19, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

26. The method according to claim 20, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

27. The method according to claim 21, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

28. The method according to claim 16, wherein the polyol is triethanolamine.

29. The method according to claim 17, wherein the polyol is triethanolamine.

30. The method according to claim 18, wherein the polyol is triethanolamine.

31. The method according to claim 19, wherein the polyol is triethanolamine.

32. The method according to claim 20, wherein the polyol is triethanolamine.

33. The method according to claim 21, wherein the polyol is triethanolamine.

34. The method according to claim 22, wherein the polyol is triethanolamine.

35. The method according to claim 22 wherein the polymer fibers are polyester fibers.

36. The method according to claim 23 wherein the fibers comprise about 8 to about 16 wt. percent polyester fibers.

37. The method according to claim 24 wherein the polyester fibers are at least 0.25 inch long and at least 1.5 denier.

38. The method according to claim 37 wherein the glass fibers are between about 0.5 and 1.5 inches long and have an average diameter of between about 10 and about 19 microns.

39. The method according to claim 37 wherein the glass fibers have an average diameter between about 13 microns and about 16 microns and a length of between about 0.75 and about 1.25 inch.

40. The method according to claim 35, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

41. The method according to claim 36, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

42. The method according to claim 37, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

43. The method according to claim 38, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

44. The method according to claim 39, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

45. The method according to claim 35, wherein the polyol is triethanolamine.

46. The method according to claim 36, wherein the polyol is triethanolamine.

47. The method according to claim 37, wherein the polyol is triethanolamine.

48. The method according to claim 38, wherein the polyol is triethanolamine.

49. The method according to claim 39, wherein the polyol is triethanolamine.

50. The method according to claim 40, wherein the polyol is triethanolamine.

51. A fibrous nonwoven mat comprising a blend of fibers comprising about 65 to about 92 weight percent glass fibers and about 2 to about 35 percent man-made polymer fibers in a nonwoven web, the fibers in the web being bound together by a binder that is at least partially cured and comprises before drying and curing a homopolymer or a copolymer of polyacrylic acid and a polyol.

52. The mat according to claim 51, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

53. The mat according to claim 51, wherein the polyol is triethanolamine.

54. The mat according to claim 52, wherein the polyol is triethanolamine.

55. The mat of claim 51 wherein the man-made polymer fibers are polyester fibers.

56. The mat of claim 52 wherein the man-made polymer fibers are polyester fibers.

57. The mat of claim 53 wherein the man-made polymer fibers are polyester fibers.

58. The mat of claim 54 wherein the man-made polymer fibers are polyester fibers.

59. The mat of claim 51 wherein the blend comprises about 80 to about 95 wt. percent glass fibers and about 5 to about 20 wt. percent man-made polymer fibers and the binder content is in the range of about 15 to about 30 wt. percent.

60. The mat of claim 59 wherein the polymer fibers are polyester fibers and the glass fibers have an average fiber diameter in the range 16 +/- 1 micron.

61. The mat of claim 60 wherein the polyester fibers are present in the blend in amounts between about 8 and 16 wt. percent.

62. The mat of claim 61 wherein the polyester fibers are about 1.5 denier and are about 0.25 +/- .07 inch long.

63. The mat of claim 52 wherein the blend comprises about 80 to about 95 wt. percent glass fibers and about 5 to about 20 wt. percent man-made polymer fibers and the binder content is in the range of about 15 to about 30 wt. percent.

64. The mat of claim 63 wherein the polymer fibers are polyester fibers and the glass fibers have an average fiber diameter in the range 16 +/- 1 micron.

65. The mat of claim 64 wherein the polyester fibers are present in the blend in amounts between about 8 and 16 wt. percent.

66. The mat of claim 65 wherein the polyester fibers are about 1.5 denier and are about 0.25 +/- .07 inch long.

67. The mat of claim 53 wherein the blend comprises about 80 to about 95 wt. percent glass fibers and about 5 to about 20 wt. percent man-made polymer fibers and the binder content is in the range of about 15 to about 30 wt. percent.

68. The mat of claim 67 wherein the polymer fibers are polyester fibers and the glass fibers have an average fiber diameter in the range 16 +/- 1 micron.

69. The mat of claim 68 wherein the polyester fibers are present in the blend in amounts between about 8 and 16 wt. percent.

70. The mat of claim 69 wherein the polyester fibers are about 1.5 denier and are about 0.25 +/- .07 inch long.

71. The mat of claim 51 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

72. The mat of claim 52 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

73. The mat of claim 53 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

74. The mat of claim 54 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

75. The mat of claim 55 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

76. The mat of claim 56 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

77. The mat of claim 57 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

78. The mat of claim 58 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

79. The mat of claim 59 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

80. The mat of claim 60 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

81. The mat of claim 61 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

82. The mat of claim 62 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

83. The mat of claim 63 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

84. The mat of claim 64 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

85. The mat of claim 65 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

86. The mat of claim 66 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

87. The mat of claim 67 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

88. The mat of claim 68 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

89. The mat of claim 69 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

90. The mat of claim 70 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

91. A nonwoven mat comprised of a blend of fibers comprised of about 84 to about 92 wt. percent of glass fibers having an average fiber diameter of about 16 + 1/- 1.5 microns and lengths within the range of about 0.7 and about 1.25 inches and about 8 to about 16 wt. percent of polyester fibers having a length of 0.25 + 0.25/-0.07 inch, the fibers being bound together with about 20 to about 30 wt. percent, based on the dry weight of the mat, of a cured resin derived from an aqueous homopolymer or copolymer of polyacrylic acid and a polyol.

92. The mat of claim 91 wherein the average molecular weight of the polyacrylic acid polymer is about 3000 or less.

93. The mat of claim 91 wherein the polyol is triethanolamine.

94. The mat of claim 92 wherein the polyol is triethanolamine.

95. A method for making a fibrous nonwoven mat having good strength and recovery after scoring and folding comprising;

a) dispersing fibers comprising two different types of fibers in an aqueous dispersion,

b) draining said dispersion through a moving forming screen to form a wet fibrous web,

c) applying an aqueous resin binder to the wet web and removing excess binder to produce the desired binder content in the wet web, and

d) drying the wet web and curing the resin in the binder to a "B" stage condition to form a thermoformable fibrous nonwoven mat, wherein;

i) the fiber dispersion comprises about 2 to about 35 weight percent polymer fibers and and about 98 to about 65 weight percent glass fibers, based on the total weight of the fibers in the dispersion, and

ii) the aqueous binder comprises a mixture of water and a resin formed from a homopolymer or a copolymer of polyacrylic acid and a polyol.

96. The method of claim 95 wherein the average molecular weight of the polyacrylic acid polymer is about 3000 or less.

97. The mat of claim 96 wherein the polyol is triethanolamine.

98. The mat of claim 96 wherein the polyol is triethanolamine.